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ABSTRACT

Second grade good readers (N=46) and fourth grade good and poor readers (N=46; N=48) were subjects in a study that examined linguistic cue usage by good and poor readers in a Southern metropolitan area. A secondary purpose was to compare the standard and phoneme cloze procedures with oral miscue analysis. The subjects were identified as good or poor readers on the basis of their percentile scores on the Comprehensive Test of Basic Skills and a teacher rating scale, and then randomly assigned to one of three test forms: intact for the oral analysis, standard cloze, and phoneme cloze using a fifth word deletion pattern that included the first phoneme of the deleted word. Responses were scored on their semantic and syntactic appropriateness. Oral reading errors were also analyzed on their graphic similarity to the text word. The two principle findings of this study were that (1) the syntactic and nonsense error linguistic variables discriminated between good and poor fourth grade readers, and (2) the phoneme and standard cloze procedures were not as effective as oral reading miscue in predicting group membership, with fourth grade readers using the syntactic and nonsense variables as the discriminant dimensions. The second grade readers were significantly different from both fourth grade groups on the percentage of synonym errors, but the two fourth grade groups were not significantly different from each other. (HOD)

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A Psycholinguistic Comparison Using Cloze and Oral Miscue Analysis of Good and Poor Readers

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ABSTRACT

The purpose of this study was to examine linguistic cue usage by good and poor readers. A secondary purpose was to compare the standard and phoneme cloze procedures to oral miscue analysis.

Subjects were second grade good readers and fourth grade good and poor readers. The subjects were identified on the the basis of test scores and a teacher rating scale and then randomly assigned to one of three test forms.

Test passages were used in three forms: intact for the oral analysis, standard cloze and phoneme cloze using a fifth-word deletion pattern. The phoneme cloze included the first phoneme of the deleted word.

Responses were scored on their semantic and syntactic appropriateness. Oral reading errors were also analyzed on their graphic similarity to the text word.

There were six linguistic categories. Each subject's errors were categorized into one of the categories and percentage error scores were determine.

Significant qualitative and quantitative differences between good and poor readers were found. A possible profile of a poor reader is suggested along with suggestions for using the standard and phoneme cloze tests.

To examine a reader's ability to use a linguistic cue, such as syntax, separate from all other available cues in the reading process, appears unwise because the reader interacts with all the information in the written text to predict words and meanings. The continuous prediction and checking is conducted by the reader's knowledge of language in addition to the reader's experiential knowledge with the subject matter (Smith, 1971). The language cues used in the reading process are the graphic, syntactic, and semantic information contained in the written text. According to Smith, the reader utilizes this information to reduce the number of alternatives available in his choice of words and meanings. Thus, in the sentence "Partly cloudy with warm days and _____ nights," the reader's choices would include "cool," "hot," "warm," and "cold." These are syntactically appropriate because they are all adjectives and also semantically appropriate because they fit the meaning of the sentence. With the graphic clue added, the reader sees "m_____" and now eliminates all alternatives which do not begin with the same initial sound that is seen. Thus, the reader has reduced his choices to predict the correct word.

If the reader did not have knowledge or sense of syntax and semantics, predictions may be random and nonsensical. If the reader could not integrate the graphic, syntactic, and semantic information, predictions may indicate either a

preference for one of the linguistic cues available to be nonsense predictions. The question is do good and poor readers differ in their ability to use the linguistic cues in making predictions?

The two primary methods of examining linguistic cue usage by good and poor readers have been oral miscue analysis (Goodman, 1965) and the cloze procedure (Taylor, 1953). Studies have been either qualitative in nature, where errors were analyzed into linguistic categories, or quantitative, where errors were simply totalled.

Review of Literature

Oral miscue analysis studies have resulted in disparate results concerning qualitative differences between good and poor readers. Weber (1970) analyzed oral reading errors of first grade high and low achievers and found their errors to be syntactically appropriate. Coomber (1972) used third grade subjects and found no significant differences between good, average, and poor readers on their syntactically appropriate responses. Cohen (1975) analyzed first grade children's errors over a one-year period and found good readers had a higher proportion of syntactically acceptable errors. The poor readers delayed in producing real words of grammatical acceptability indicating a possible developmental lag in syntactic structure awareness.

Certain oral miscue studies have classified subjects more specifically than "good-poor" readers. High comprehenders made more semantically and syntactically appropriate errors than low comprehenders (Isakson & Miller, 1976; Kendall & Hood, 1978). High comprehenders in both studies showed sensitivity to semantic cues in reading while poor comprenenders ignored the cues and treated the words as individual units.

The cloze studies were as equally disparate in their conclusions and findings as the oral miscue analysis studies. Weaver and Henry (1978) found significant differences between third grade good and poor readers on responses which were syntactically appropriate but not semantically appropriate and on nonsense-type errors (neither syntactically nor semantically appropriate). Guthrie (1973), using a maze procedure, found no qualitative differences between good and poor readers as did Neville and Pugh (1976) who used three types of cloze tests. The latter two studies concluded that the difference between good and poor readers was one of quantity not quality of error.

Allington and Strange (1977) conducted a study which required the reader to integrate the semantic, syntactic, and graphic information in the reading task. The researchers used sentences with one deleted word. In the absence of the graphic cue, both good and poor readers tended to give a

response which was semantically and syntactically appropriate to the sentence. If the response was incorrect, graphic information was given. Once the graphic information was given, each group tended to not respond. The poor readers needed more of the word exposed before a correct response could be given than any other group, perhaps indicating a greater difficulty in the integration of the three linguistic cue systems.

Dolquiest (1977) investigated both the cloze responses and oral miscues of fourth grade average and poor readers and second grade average readers. The two procedures produced different results. Using the oral miscue analysis technique the two fourth grade groups were not significantly different on the syntactic and semantic categories, but fourth average and second average were significantly different on three of the six categories. On the cloze, all groups were significantly different from each other on only one semantic-syntactic category, but the fourth poor and fourth average were not significantly different on any of the other five categories. The results raise the question whether the two methods are measuring the same linguistic abilities in reading.

The cloze and oral miscue analysis do not seem to employ the same skills in the reader. The standard cloze does not have the additional graphic clue available in the intact

passage used in oral miscue analysis. Thus, the cloze reader draws only from the context available and his background knowledge to predict the deleted word. Differences between reader groups on the cloze may stem from their store, or lack of, background experiences with the subject matter, which may not be a factor with an intact passage.

Reviewing the research, it appears that differences, or lack of them, may have stemmed from the problems within the research itself. Readability of the passages was not controlled in most studies so that good readers may have read passages which were too easy and their poor reader counterparts read ones which were too difficult. The cloze studies used different types of deletion patterns and some used continuous discourse while others used isolated sentences. More significantly, all studies utilized different criteria for determining semantic, syntactic, and graphic acceptability. Thus, semantically acceptable responses in one study may have had a different connotation in another study. This lack of control over the criteria, readability, and type of passages used may have caused the varying conclusions and results across studies.

This study set out to examine the following questions:

1. Do good and poor readers differ in their linguistic skill usage during reading and, if so, on which linguistic variables?

2. Can linguistic variables successfully discriminate between good and poor readers?

3. Is the cloze procedure as effective as oral miscue analysis in discriminating between good and poor readers?

This study was designed to examine language cue usage by good and poor readers and to compare the cloze test and oral miscue analysis as techniques to measure language cue usage ability. Two cloze procedures were utilized in this study: a standard clzoe with a fifth word deletion pattern and a phoneme cloze which followed the same deletion pattern but included the initial phoneme of the deleted word.

Method

Sample

The subjects were second grade good readers (2G), fourth grade good readers (4G), and fourth grade poor readers (4P) from four elementary schools in a southern metropolitan area. The subjects were selected on the basis of two criteria: the Comprehensive Test of Basic Skills (CTBS) total reading percentile and a teacher rating. Teachers wrote the names of students on a selection form who, in their judgment, were above average and below average in reading ability. Above average was defined for the teachers as reading at least one year above grade placement. Below average was defined as reading at least one yer below grade placement. Educable Mentally Handicapped students were excluded from the study.

The researcher selected good reader subjects in the second and fourth grades who scored at or above the 70th percentile on the CTBS and were also rated as above average by their teacher. Poor reader subjects in the fourth grade were those who scored at or below the 39th percentile on the CTBS and were also rated as below average by their teacher. The final sample consisted of 140 subjects. There were 46 second grade good readers, 46 fourth grade good readers, and 48 fourth grade poor readers. The mean CTBS percentiles were 85.66, 90.23, and 14.59 for the second, fourth good, and fourth poor reader groups, respectively.

Instruments

The researcher wrote two passages in the social studies content area titled "Air Travel" and "Air Pollution." The passages were at the grade three and grade five readability levels, respectively, according to the Fry (1977) and Harris-Jacobson (Harris, 1975) readability formulas.

Each passage was used in three test conditions. The oral reading passages were left intact. For each passage, the investigator wrote 10 questions. The standard cloze had 50 deletions with every fifth word eliminated and the first and last sentences left intact. The phoneme cloze followed the same deletion pattern as the standard cloze but included the first phoneme of the deleted word. Phonemes were initial

single consonants, consonant digraphs and blends, initial single vowels, vowel diphthongs, and r-controlled vowels. If a deleted word consisted of a one-letter word or a two-letter word with an r-controlled vowel, the following word in the passage was deleted. Examples of the standard and phoneme cloze sentences are as follows:

Standard - The _____ (1) was invented in 1901 _____ (2) Marconi.

Phoneme - The r_____ (1) was invented in 1901 b_____ (2) Marconi.

Procedure

Subjects in each reading group were ranked by their percentile scores, grouped into triads, and randomly assigned to one of the three test techniques. Thus, the subjects in each reading group were in only one of the three test conditions--oral, standard cloze, or phoneme cloze. All subjects were individually tested by the researcher. Subjects assigned to the cloze passages completed a practice passage with the researcher's guidance that contained 10 blanks. Subjects then read and responded to the cloze test passage silently without assistance from the researcher. Subjects in the oral reading procedure read the test passage aloud and answered the comprehension questions with the test passage removed. Oral reading was tape recorded and miscues

were transcribed that evening. There were no time limits given in any test conditon.

Oral reading miscues followed those outlined in the Analytical Reading Inventory (Woods & Moe, 1971, p.13). Miscues were omissions, insertions, substitutions, aided words, and reversals. Self-corrections were noted but not counted as errors. Although a reading miscue has a different meaning from the term "error," the two will be used interchangeably in this study.

The 2G readers and 4P readers read the third grade level passage. The 4G readers read the fifth grade passage. As the good readers were reading at least one grade level above grade placement, the test passages one grade level above their grade placement were considered to be at least on the subjects' instructional reading levels. The same assumption was made for the 4P readers who read the third grade level passage.

Linguistic Scoring

The errors in all test forms were analyzed into several linguistic categories. Cloze responses first followed an exact replacement scoring. The responses on the cloze had to have the correct ending to be considered an exact replacement. Misspelled words which were phonetically true to the deleted word were considered exact replacements. The errors

were analyzed for their linguistic properties. Oral reading errors were also analyzed for their linguistic properties and also on their graphic similarity to the text word.

There were five linguistic categories. These categories are defined as follows.

1. Synonym (SYN). The researcher developed a list of acceptable synonyms for each cloze deletion using two thesauruses. Substitutions on the oral reading passages were individually checked in the thesauruses. For example, the following responses were considered acceptable synomyms:

We can travel (go) to any country by airplane (air).

2. Semantically Appropriate (SEM). There were two types of semantic responses: semantic and syntactic (SEM A), and semantic and not syntactic (SEM B). SEM A responses produced a meaningful sentence although they did not necessarily indicate the author's intended meaning. Syntactically correct was defined as agreeing in number, tense, and usage in the sentence with the text word. Therefore, the word had to have meaning and also be syntactically correct to be placed in the SEM A category. The following are examples of SEM A responses:

Smoke doesn't (may) stay in the air . . .

Big (Some) airplanes carry over 300 packages (people) at once.

SEM B responses indicated the reader was gaining meaning from the passage but the response was not syntactically apropriate. For example:

The main producers of harm (dangerous) gases are cars . . .

These people are the only one ones who know . . .

3. Syntactically Appropriate (STC). If a response could not be placed in one of the first two categories, it was judged on its syntactic appropriateness. The responses had to agree with the text word in its usage, category, number, and tense, where appropriate. Usage categories were nouns, pronouns, verbs, adjectives, adverbs, prepositions, and conjunctions. For example:

When fuels burn they emit smoke that is contains poisonous gases.

The response "is" was classified a verb, matching the usage category for "contains." "Is" also agreed in tense (present) and number (singular) and was considered syntactically appropriate.

4. Nonsense Responses (NON). Words which did not make sense in the sentence and were not syntactically appropriate were nonsense responses. Non-words were also considered

nonsense errors. In the example below, "that," "now," and "very" were considered nonsense errors:

Most pollution ___that___ is caused by the same thing.
(today)
About 85 percent of the air pollutants ___now___ the
(in)
U. S. are ___very___ in smoke.
(found)

5. Omissions. Oral reading omissions and cloze blanks not filled in were classified as omissions.

Graphic Similarity Scoring

Graphic similarity of oral miscues was judged on six criteria. Weber's (1970) study resulted in four categories which were used most often by beginning readers in their word predictions. These categories were: (a) same first letter as text word, (b) same first two letters as text word, (c) same last letter as text word, and (d) same last two letters as text word. Two additional categories were included in this study: (e) same first and last letter as text word, and (f) same first two letters and last letter as text word.

A substitution was judged on graphic similarity on the basis of one of the six categories listed above. If a word fell into two categories, it was placed in the most inclusive. Thus, the categories became mutually exclusive as any single response was placed in only one category. A graphic

score for each subject in the oral reading test method was determined by totalling the frequencies of the six categories.

The error analysis described for linguistic scoring and the graphic similarity scoring was applied to the following formulas derived, in part, from a study by Vaughan and Meredith (1978):

*1. $\frac{ER}{50}$ = Percentage of exact replacements on the cloze procedures (PER).

**2. $\frac{(SYN + SEMA + SEMB)}{\text{Total Errors}}$ = Percentage of semantically appropriate words (PSEM).

**3. $\frac{SYN}{\text{Total Errors}}$ = Percentage of synonyms in the total errors committed (PSYN).

**4. $\frac{STC}{\text{Total Errors}}$ = Percentage of syntactically appropriate errors (PSTC).

**5. $\frac{NON}{\text{Total Errors}}$ = Percentage of nonsense errors (PNON).

**6. $\frac{\text{Omissions}}{\text{Total Errors}}$ = Percentage of no responses in the total errors (POM).

***7. $\frac{\text{Graphic}}{\text{Total Errors}}$ = Percentage of graphically similar errors (PGR)

***8. $\frac{\text{Graphic} - (SYN+SEMA+SEMB+STC)}{\text{Total Errors}}$ = Percentage of graphically similar errors which were not syntactically nor semantically appropriate (PGRN).

***9. $\frac{\text{Self-Corrections}}{\text{Errors + Self-Corrections}}$ = Percentage of corrected errors (PSC).

***10. $\frac{\text{Total Errors}}{\text{Total Errors + Self-Corrections}}$ = Percentage of errors that had no correction attempt (PERR).

*Formula used with cloze procedures only.

**Formulas used with all test procedures.

***Formulas used with oral procedure only.

A Pearson Product Moment correlation among the linguistic variables derived from Formulas 3 through 7 showed significantly low to moderate correlations for all but two of the variable intercorrelations,. The results, given in Table 1, show that the correlations accounted for less than 15 percent of the variance, indicating the dependent linguistic variables were essentially independent of one another.

Statistical Analysis

The statistical procedures applied were a multivariate analysis of variance followed by several two-way and one-way analyses of variance and six discriminant analyses. All hypotheses were tested at the .05 alpha level of significance.

Results

The linguistic error analysis tested with the MANOVA showed significant main effects for Group [Wilks Λ = .54, $F(10,154) = 9.26$, $p<.01$] and for Test [Wilks Λ = .46, $F(10,254) = 11.84$, $p<.01$]. There was also a significant Group X Test interaction [Wilks Λ = .73, $F(20,422.16) = 2.14$, $p<.003$]. The univariate F-tests for Main Effect Group

Table 1

Intercorrelations Among the Linguistic Variables: PSYN, PSTC, PSEM, PNON, and POM

	PSYN	PSTC	PSEM	PNON	POM
PSYN	1.00	-.31	.15	-.07*	-.01*
PSTC		1.00	-.38	-.24	-.21
PSEM			1.00	-.32	-.24
PNON				1.00	-.36
POM					1.00

*Not significant

revealed the following significant linguistic variables: PSEM[1], PSYN, PSTC, and PNON. The univariate F-tests for Main Effect Test showed the following significant variables: PSEM[1], PSYN, PSTC, PNON, and POM. The only variables significant for the Interaction Effect were PSYN and PSTC. Table 2 gives a summary of the MANOVA.

To determine which groups and tests were significantly different from each other on the linguistic variables, the Tukey Test was applied. Interaction effects were studied with a two-way ANOVA on the variables PSYN and PSTC.

Group Differences. Table 3 presents the means and standard deviations for all group and test forms on the linguistic analysis. The 2G readers were significantly different from both fourth grade groups on the percentage of synonym errors (PSYN), but the two fourth grade groups were not significantly different from each other. The significant interaction between group and test form, however, makes interpretations on PSYN difficult. The 2G readers produced more synonyms than 4G or 4P except on the oral test on which the 4P had the highest mean PSYN.

The two fourth grade groups were significantly different on the percentage of syntactically appropriate errors (PSTC) as were the 2G and 4G readers. The syntactic variable was one of two linguistic variables to show a significant

Table 2

Summary of MANOVA on Linguistic Variables by Group and Test Form

Source	df	Wilk's Lambda	F	Error df	p
Groups	10	.54	9.26	254.00	.01
Test	10	.46	11.84	254.00	.01
Groups X Test	20	.73	2.14	422.16	.003

Univariate F-Tests with df=2,131

	MS	Error MS	F	p
Group				
PSEM	.11	.03	4.07	.02
PSYN	.04	.01	14.66	.001
PSTC	.06	.02	8.13	.001
PNON	.51	.02	23.58	.001
POM	.04	.02	1.54	.22
Test				
PSEM	.39	.03	13.88	.001
PSYN	.06	.003	24.75	.001
PSTC	.30	.02	15.24	.001
PNON	.13	.01	6.05	.003
POM	.14	.02	5.62	.005
Group X Test				
PSEM	.03	.03	.97	NS
PSYN	.01	.002	3.00	.02
PSTC	.05	.02	2.75	.03
PNON	.04	.02	1.64	NS
POM	.03	.02	1.22	NS

Table 3

Means and Standard Deviations of the Percentage of Synonyms, Syntactically Appropriate, Semantically Appropriate, Nonsense and Omission Errors by Group and Test Form

Group/Test	PSYN	SD	PSTC	SD	PSEM1	SD	PNON	SD	POM	SD	N
Second Good											
Oral	1.19	.04	20.32	.22	42.22	.24	21.40	.20	5.78	.11	14
Standard	12.77	.06	8.29	.04	37.84	.10	18.62	.12	19.30	.21	17
Phoneme	10.61	.05	11.70	.05	51.06	.16	21.55	.10	23.63	.16	15
Fourth Good											
Oral	0.00	.00	38.77	.31	29.32	.24	8.27	.09	14.79	.17	16
Standard	6.10	.06	15.23	.09	31.18	.11	16.26	.10	14.60	.12	16
Phoneme	2.12	.04	12.70	.07	53.45	.16	27.73	.18	23.09	.18	14
Fourth Poor											
Oral	3.09	.05	16.13	.10	30.62	.16	32.59	.12	5.85	.10	15
Standard	7.82	.07	8.54	.05	28.99	.14	33.48	.13	15.30	.15	17
Phoneme	5.12	.05	11.20	.05	42.34	.14	43.27	.22	15.66	.18	16

difference between the 4G and 4P readers. Again, the signif-acant interaction effect made conclusions difficult. The 2G and 4P readers performed similarly on all test forms and the significant difference between the two fourth grade groups and between 2G and 4G readers may inicate the 4P readers had a developmental lag in the area of syntactic sensitivity.

On the percentage of semantically appropriate errors ($PSEM^1$) the 2G readers were significantly different from the 4P readers. No other group differences were significant. The 2G readers had the highest mean PSEM indicating that they could produce more synonyms than any other group, including the 4G readers. As the number of synonyms was a part of the semantic variable on $PSEM^1$, the researcher did a follow-up examination on group differences removing the synonym factor from the $PSEM^1$ formula producing $PSEM^2$. An analysis of variance on $PSEM^2$ found no significant effects at the .05 alpha level for groups, $F(2,139) = 2.69$, $p<.07$. The differ-ences found in $PSEM^1$ were significant due to the synonym variable.

The percentage of nonsense errors (PNON) revealed significant differences between the 4G and 4P readers. The 4P readers made the highest percentage of nonsense errors with the 4G making the lowest percentage, as expected. The 4G and 2G readers were not significantly different on PNON nor were the 4P and 2G readers.

Test Differences. The oral test form and phoneme cloze test were the most different in the analysis of linguistic variables. Of the five linguistic variables, the two tests were significnatly different on four of the variables. As the phoneme test was developed in an attempt to approximate the oral reading passage, this dissimilarity was not expected. There was, however, an interesting effect between exact replacements, nonsense errors, and omissions. The reader in the phoneme cloze produced more exact replacements than one of the standard cloze. However, there were more nonsense and omission errors on the phoneme cloze. Thus, when the reader could not respond with the exact deleted word on the phoneme cloze matching semantic, syntactic, and graphic information, the reader tended to either not respond (omission) or respond with a nonsense answer that fit the graphic clue given.

The oral and standard cloze tests were significantly different on three of the five variables. One of the variables was $PSEM^1$ ($PSEM^2$ was not tested for test effect differences). Certain tests had higher means for certain linguistic variables. The standard cloze had the highest mean score on PSYN and PSEM. The oral test had the highest mean score on PSTC. The phoneme cloze showed the highest mean on nonsense and omission errors.

Discriminant Analyses. To examine the effectiveness of each test and the linguistic variables in discriminating between good and poor readers, the researcher conducted six discriminant analyses. Each test was used with the two fourth grade groups and then again with all three groups in the analyses. The general recommendation for the number of subjects in a discriminant analysis is 20 times the number of variables entered. As there were 45 to 50 subjects with each test, the researcher selected two linguistic variables to be entered in the discriminant analyses. The two variables selected were PSTC and PNON as they were significantly different for the 4G and 4P readers.

The discriminant function derived with the oral test was able to separate the 4G and 4P readers with 90.23 percent accuracy. The standard cloze function separated 4G and 4P readers with 78.79 percent accuracy and the phoneme cloze separated the two groups with 70.00 percent accuracy. As chance would separate two groups with 50 percent accuracy, all three test forms were able to predict group membership better than chance with the PSTC and PNON variables.

The inclusion of all three groups in the discriminant analyses resulted in a classification of 60.00 percent, 55.56 percent, and 54.00 percent for the oral test, phoneme cloze, and standard cloze, respectively. Again, chance placement for three groups would have been 33.33 percent; and, thus,

the tests were distinguishing among groups better than chance. The standard cannonical discriminant functions of PSTC and PNON on each test form is given in Table 4.

Oral Reading Behavior Analysis

There were three areas analyzed in the oral reading passages in addition to the linguistic analyses. These areas were: self-corrections, errors with no correction attempts, and graphic similarity. There were no significant differences found among the three groups on these variables.

Quantitative Analysis

The question of quantitative difference between good and poor readers appeared to be related to the test method. When good and poor readers were compared on their cloze exact replacements (which is the reverse of error scores but has the same meaning with the cloze), the 4G and 4P readers were not significantly different from each other. A significant difference did occur between the 2G and 4P readers. However, when the mean error scores on the oral test were compared across groups, the two fourth grade groups were found to be significantly different, and the 2G and 4P readers showed no statistically significant differences. Thus, a statement that good and poor readers are different not qualitatively but quantitatively would have to reflect the testing

Table 4

Standard Canonical Discriminant Functions for Each Test with Fourth Grade Good and Poor Readers and Second Good, Fourth Good, and Fourth Poor Readers

	4th Good v. 4th Poor		2nd Good v. 4th Good v. 4th Poor	
Test	PSTC	PNON	PSTC	PNON
Oral	-.15891	.94402	-.43318	.84968
Standard	.01531	1.00266	.19358	1.00236
Phoneme	.76227	-.59246	-.57720	.81567

procedure as the oral and cloze tests produced different results in the quantitative area of analysis.

Discussion and Conclusions

The two principle findings of this study were that the syntactic and nonsense error linguistic variables discriminated between good and poor fourth grade readers and that the phoneme and standard cloze procedures were not as effective as oral reading miscue in predicting group membership with fourth grade readers using the syntactic and nonsense variables as the discriminant dimensions.

The significant finding with the syntactic variable was not unexpected as other studies had found that poor readers made more syntactic errors than good readers (Cohen, 1975; Coomber, 1972; Dolqueist, 1977; Vaughan & Meredith, 1978; Weaver & Henry, 1978). The nonsense error variable also had support from the study by Weaver and Henry (1978) who found good and poor readers to differ on nonsense-type errors in oral miscue analysis. Thus, a linguistic profile showing a small percentage of syntactic errors and a large percentage of nonsense errors would probably be that of a poor reader and one who did not use contextual clues during reading.

While group differences did exist in this study, the usefulness of any test lies with the teacher's ability to examine the individual reader's particular weaknesses. The

results of this study indicated that poor readers were weak in the syntactic area and could benefit from this type of assistance. It may be, however, that not all poor readers need this type of assistance. In fact, such was the case. Within the group of poor readers, there was variation in the subjects' syntactic sensitivities. Figure 1 presents a comparison of two poor readers on the linguistic measures using the standard cloze test. Reader 1 produced syntactically appropriate errors only 4 percent of the time and over 50 percent of the time produced a nonsense error. In total, Reader 1's errors were linguistically appropriate only 40 percent of the time. Reader 1 may profit from instruction in which he must attend to the syntax of the sentence. Conversely, Reader 2 produced a syntactically appropriate error 8 percent of the time but nonsense errors only 4 percent of the time. The total of the linguistically appropriate responses produced by Reader 2 was 65 percent. Reader 2 was making good use of context, and further testing would be recommended to determine the areas of reading skill weaknesses.

Thus, the linguistic variables, as measured in this study, would appear to have value in assessing individual differences rather than group differences. An individual's profile of linguistic cue usage can be plotted using the percentage scores derived from the linguistic formulas. As

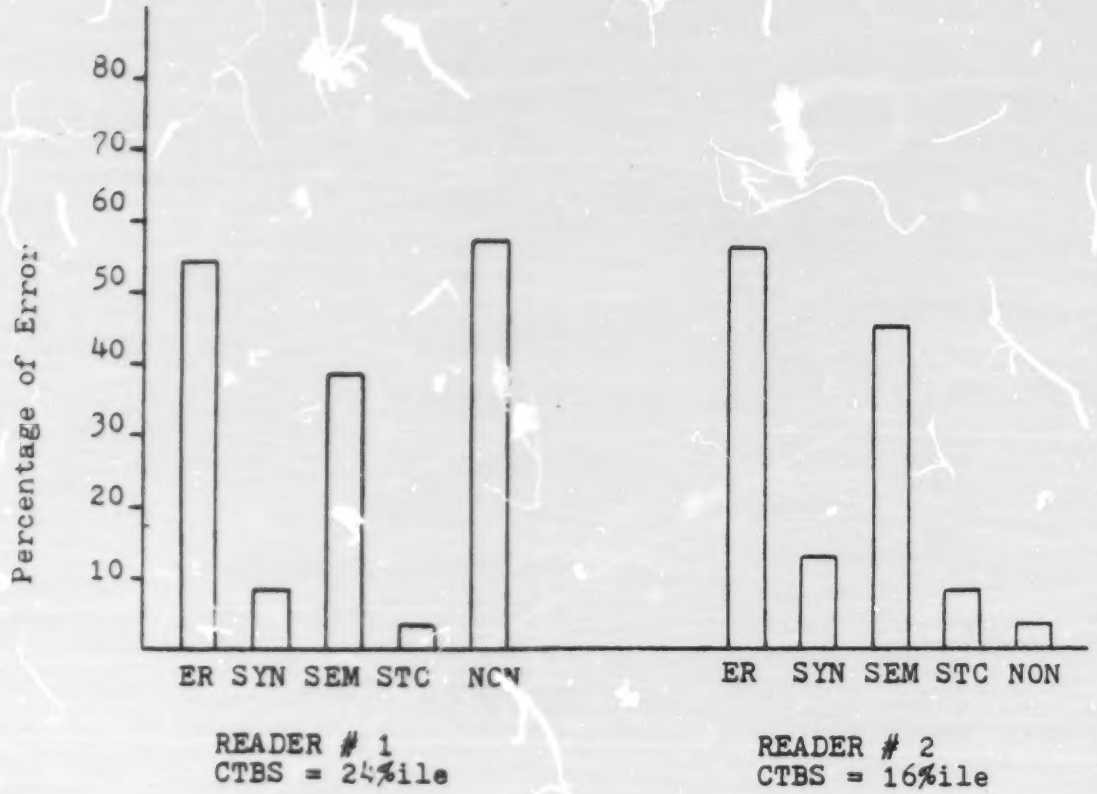

Figure 1. A comparison of two poor fourth grade readers on the linguistic cues as measured by the standard cloze test.

the variables were independent of each other, evidenced by the low intercorrelations, the individual differences and profiles would be meaningful and interpretable.

While the two cloze tests were not considered as effective as the oral test in discriminating between groups, the standard cloze did provide useful screening information. The standard cloze test was more like the oral test in measuring the linguistic cue usage than the phoneme cloze as the standard and oral tests differed on two linguistic variables while the phoneme and oral differed on four of the five variables. To measure linguistic cue usage, the standard cloze may be an appropriate screening device.

The recommendation to classroom teachers would be to administer the standard cloze test to a group first as a screening device for linguistic clue usage and then follow up with either an individually administered oral test and oral miscue analysis or corrective instruction. The cloze passage should be at the student's instructional reading level. By totalling the synonym, semantic (with synonym factor removed), and syntactic percentages, the teacher would have a rough estimate of the student's linguistic cue usage.

Research on the variables as defined and determined in this study should provide a basis for future research. Attempts to cross-validate the discriminant functions using the syntactic and nonsense variables should be conducted with

a randomly selected group. Some questions which this study has generated for future research are:

1. Can the combination of syntactic and nonsense variables predict reading failure in young children?

2. Can individuals exhibiting weaknesses in the syntactic category improve reading comprehension and/or word recognition skills with instruction on syntactic usage?

3. Can the phoneme cloze be a useful teaching device for poor readers who have difficulty integrating the three linguistic cue systems--semantic, syntactic, and graphic?

This study provided useful information on the linguistic variables and linguistic cue usage by groups of good and poor readers. Further investigation should concentrate on individual differences and abilities related to the use of linguistic cues during reading.

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